

The Challenge of Hyperon Polarization

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We provide a brief topical outline of the persisting problem of hyperon polarization and consider some future experimental prospects. Predictions which deserve experimental verification are proposed. In the recent years a number of significant and unexpected spin effects were discovered. The main points of our discussion are the following:

- a universal p_{\perp} -dependence for all spin parameters in Δ -hyperon production which reflects a finite size for constituent quarks is predicted: 0 spin parameters in the collisions of hadrons without valence strange quarks demonstrate an increase in absolute value up to $p_{\perp} \simeq 1$ GeV/c and then become flat.
- three-spin correlation parameters - the new observables which can be measured in hyperon production with polarized beams - can provide new insight into the mechanism of hyperon polarization.
- hyperon polarization should vanish in heavy-ion collisions when quark-gluon plasma is formed, its decrease with centrality can be considered as a gold-plated signature of QGP formation.